

Advice for Preparing an NSF Graduate Research Fellowship Application from Successful NSF Fellows

1. Although each of the three essays serves its own unique purpose (*who you are*, *what you've done*, and *what you will (maybe) do*, roughly speaking) it's important to develop a sense of cohesion among them. A concrete way of doing this is to parenthetically reference essays within one another. In particular, if it makes sense to do so, I would suggest using "(see Previous Research)" and "(see Proposed Plan of Research)" in the Personal Statement, and the latter in the Previous Research Experience. This allows the student to maintain a consistent narrative throughout his/her application, and also makes it clear to the reviewers that the different sections connect to one another. Connect the dots without duplicating.
2. Certainly every applicant should be familiar with the Tips for Applying (http://www.nsfgrfp.org/applicant_resources/tips_for_applying) and the Review Criteria (http://www.nsfgrfp.org/how_to_apply/review_criteria). The latter contains an additional buzzword: *transformative* (located under Intellectual Merit). Applicants should read about what constitutes Transformative Research (<http://www.nsf.gov/pubs/2007/in130/in130.jsp>) and ensure that their essays address this point. I went so far as to use the word "transformative" in my essay; the reviewers will be going through a lot of applications, so why not make it easy on them and state directly *why* your research has the potential to be transformative?
3. A helpful piece of advice that I received: remember that it's the reviewer's *job* to give out these fellowships; if she doesn't award all of them, that just means less money will be allotted the next time. As an applicant, don't beg the reviewer for funding. Instead, tell her why you are qualified and explain what you will do when you receive the fellowship. This amounts to a subtle difference in tone, but one that I think is worthy of consideration.
4. I think what worked for me was gathering as much input and feedback as possible to use as a starting point. But it is important not get too distracted; don't be afraid to go with your gut instinct. You know yourself better than anyone else, and this application is an opportunity to share your story and your passions.
5. Apply as soon as you are eligible. Even if you aren't funded the first year, you get good feedback.
6. NSF is funding you, not your research. The investment is in you, not the outcome of a project.
7. Read the first paragraph of some very good books and articles. Then emulate this narrative focus.
8. Read other proposals previously funded.
9. Your personal statement can address challenges you have experienced where the other essays should not be too "risky."
10. Write succinctly but don't be afraid to employ some colorful vocabulary. I included a number of "academicky" words (e.g., peregrinations, inchoate, vicissitudes), which I think helped bolster my essays. However, be wary of solecisms and misuses of big words; you never know if one of your reviewers will be put off by the use of "impact" as a verb.
11. Work closely with your graduate advisor to structure your application.
12. Think BIG! Successful proposals seem to take on large issues – don't minimize your proposal's goals.
13. Make sure you project is both novel and feasible.
14. Draw upon your past research and expand it. Make your proposal flow from your previous research experiences.
15. Declare and also demonstrate how your work is original.

16. Be sure to discuss the mathematical or technical skills you will use as a researcher.
17. Prove in your essays: That you are an interesting person who will be a very productive “scientific asset.”
18. If you have work experience between degrees, use it to describe how your interests and research are practical and applied.
19. I won as a senior in college. Emphasize how your experiences have led you to your career path and research or research interests.
20. Answer the question: Why is this problem worth solving?
21. Have a stronger beginning; don’t save the best for last in case a reviewer doesn’t read to the end.
22. They want to see ideas if you are an undergraduate; they want to see results or data if you are a graduate student.
23. Turn potential weaknesses into strengths. I had no publications, so I explained that I started as the only student on this project. I stayed with it from beginning to end and am now working on the manuscript as a co-author.
24. Cite literature; it helps you not make unsubstantiated claims; it shows your knowledge.
25. Work with any weaknesses. If you have holes in your knowledge or research experience, explain how you worked to fill them.
26. Get someone outside your field of interest to read and edit your essays to get a broader range of feedback. Take criticism with a smile.
27. I e-mailed my application to everyone whose research or publications I cited and asked them for their suggestions. I got wonderful responses.
28. “Coach” those who write your letters of recommendation. Give them all the materials they need to be able to convince the reviewers that “she can do this!”
29. Organize your letter writers. “I’m so pleased you agreed to write a letter of support because you will be so effective in addressing this, and this, and that.”
30. Papers are rejected for not following (even trivial) instructions and for not being clear and enthusiastic.
31. You are allowed to take your NSF abroad if you need to travel to another research site.
32. Your research proposal is not “binding.” You can make changes in your project, especially if you are funded for your first year.
33. Sell yourself. Be a marketer.
34. Carve out the time necessary for the first proposal. Subsequent proposals will be much easier.
35. Department of Defense is a similar application to NSF... but it’s easier to win. Apply for both.
36. You CAN do this! Even the smartest applicants have to put time and effort into their application.

Broader Impacts

37. Take the Broader Impacts criterion seriously. And be specific; include any tutoring, teaching, and mentoring.
38. You address Intellectual Merit by showing how your research will advance the field. You address Broader Impacts by showing how you will advance teaching and learning.
39. Be very clear. Example: “I did science workshops for 8th graders when I lived in Mississippi.”
40. I wrote, “Every time I teach or TA a class I see the challenges and opportunities to get students excited about science.”
41. What have you done and where did you present it? Did you do a summer workshop? Include anything that shows you have impact and outreach.

42. Be honest but be generous to yourself. If you have been a TA, tutor, supervisor in a lab, then talk about your work with any struggling students.
43. I was turned down the first time I applied because my application was weak on broader impacts. I really strengthened it...and also learned to write with much less jargon.
44. Emphasize community service and create a narrative that ties your concern for underserved populations with your project and overall goals as a graduate student.

Thank you to our Columbia NSF Fellows who shared their advice:

Robert Abel, Chemical Physics

Easton Anspach, Anthropology

Stephen Breazzano, Chemistry

Genevieve Brown, Biomedical Engineering

Stephen Brusatte, Chemistry

Benjamin Dickman, STEM Education and Learning Research, Mathematics Education

Adel Elsohly, Chemistry

Ben Frandsen, Physics

Dan Flynn, Ecology, Evolution and Environmental Biology

David Hardesty, Psychology

Venkatesh Hariharan, Biomedical Engineering

Miriam Inbar, Chemistry

Hedy Koobler, Psychology

Corinne Low, Psychology

David Mcghee, Earth and Environmental Sciences

Katherine Meckel, Economics

An Nguyen, Epidemiology

Brenda Rubenstein, Chemistry

Carl Smith, Chemistry

David Szakonyi, Political Science

Daniel Treitler, Chemistry

Laura Wingler, Chemistry